

## REMARKS

Claims 18 and 21-25 have been canceled without prejudice or disclaimer. Claims 26-31 have been newly added. Support for these claims can be found, *e.g.*, on page 6, lines 17-21, page 8, lines 11-12, and Figs. 10-17. Claims 1-17, 19, 20 and 26-31 are now pending. Claim 14 has been amended. Support for this amendment can be found, *e.g.*, on page 5, lines 24 and 25 and page 6, lines 10 and 11. No new matter has been added. Applicants respectfully request reexamination and allowance of claims 1-17, 19, 20 and 26-31 in view of the following comments.

### **Claim Rejections**

Claims 1-3, 5, 6, 8, 12-14, and 18 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Miyano *et al.* (US 2003/0118270, hereinafter "Miyano") in view of Dragone *et al.* (US 5,926,586, hereinafter "Dragone") and Hong (WO 86/02171, hereinafter "Hong"). Applicants respectfully traverse the rejection.

Claim 1 recites, in part, a method for making a plurality of waveguide resonator devices including dividing a precursor resonator structure into a plurality of separate resonators. Applicants note that while resonators are simple enough in principal, they can be difficult to fabricate because of the material and dimensional constraints required. *See* page 2, lines 15 and 16. The smoothness of the surface and the amount of separation between the resonator and waveguides are critical to producing a resonator. *See, e.g.*, page 2, lines 17-22. Therefore, prior manufacturing techniques for resonators included etching and thin film deposition.

It would not have been obvious to a person having ordinary skill in the art at the time the invention was made to fabricate a resonator by dividing the precursor resonator structure into a plurality of separate resonator structures. Such a person would have been cognizant of the requirements for precise dimensions and smooth surfaces. The references cited by the Examiner suggest that this precision can only be obtained through etching, thin film deposition, or other such means. *See e.g.*, Sercel, paragraph [0107] and Hong, page 20, line 36 to page 21, line 8.

None of the references cited disclose or suggest the feasibility of dividing a precursor resonator structure into a plurality of separate resonators. Miyano is directed at a waveguide coupler including a micro-cylinder or microsphere resonator. No suggestion is made to create

multiple resonators from the resonator structure. Moreover, two of the three embodiments in Miyano are directed at spherical resonator structures, which cannot be cut into separate resonators. Therefore, Miyano would not motivate a person having skill in the art to create multiple resonators by dividing a precursor resonator structure.

Neither Dragone nor Hong overcome the shortcomings of Miyano. The invention of claim 1 relates to dividing an optical element (i.e., the precursor resonator structure) to form a plurality of separate optical elements (i.e., the resonators). In contrast, Dragone discloses cutting through a substrate, not an optical element. In fact, Dragone discloses cutting the substrate in curved lines to avoid cutting the optical elements. *See* col. 3, line 65 through col. 4, line 9. Hong also fails to disclose or suggest cutting a precursor resonator structure. Rather, Figs. 6-8 and 11 of Hong illustrate the prior art arrangement shown in Figs. 1 and 2 of the present application. Hong suggests constructing these arrangements using planer optics techniques such as by the use of substitutional ions, ion exchange, or implantation. *See, e.g.*, page 20, line 36 through page 21, line 1. Therefore, for at least these reasons, Miyano would not lead a person having skill in the art to the invention of claim 1, even in view of Dragone and Hong.

Claims 2-3, 5, 6, 8, 12, and 13 depend from claim 1 and are allowable for at least the same reasons. Applicants do not otherwise concede the correctness of the rejection and reserve the right to make additional arguments if necessary.

Claim 14 recites, in part, a method for fabricating a plurality of waveguide resonator devices. The method includes mounting a precursor resonator structure to a substrate having multiple waveguides. The method further includes cutting the precursor resonator structure and the substrate into multiple pieces. Each piece includes a portion of the substrate, a portion of the precursor resonator structure, and at least one of the waveguides.

It is submitted that claim 14 is allowable for at least the same reasons as discussed above with respect to claim 1. Furthermore, none of the references cited by the Examiner disclose cutting the precursor resonator structure and the substrate into pieces such that each piece includes a portion of the substrate, a portion of the precursor resonator structure, and at least one of the waveguides. Therefore, for at least these reasons, Miyano would not lead a person having skill in the art to the invention of claim 14, even in view of Dragone and Hong.

Claim 4 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Miyano in view of Dragone as applied to claim 1 above, and further in view of Ticknor (WO 03/03643, hereinafter "Ticknor"). Applicants respectfully traverse the rejection.

Claim 4 depends from claim 1 and is therefore allowable over Miyano in view of Dragone for at least the same reasons discussed above with respect to claim 1. Furthermore, Ticknor does not overcome the shortcomings of Miyano and Dragone. The wire saw disclosed in Ticknor is used to cut a base 204 such as a silicon substrate. Nothing in Ticknor suggests the feasibility of cutting a precursor resonator structure to obtain multiple resonators. Therefore, for at least these reasons, Miyano would not lead a person having skill in the art to the invention of claim 4, even in view of Dragone and Ticknor. Applicants do not otherwise concede the correctness of the rejection and reserve the right to make additional arguments if necessary.

Claims 9-11, 15-17, 19, and 20 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Miyano in view of Dragone as applied to claim 1 or 14, and further in view of Sercel *et al.* (US 2002/0037132).

Claims 9-11 depend from claim 1 and are therefore allowable over Miyano in view of Dragone for the reasons discussed above with respect to claim 1. Furthermore, Sercel does not overcome the shortcomings of Miyano and Dragone. Sercel is directed towards a method for assembling a resonate optical power control device including coupling a second optical waveguide to a resonator structure and first waveguide. Sercel does not suggest the feasibility of cutting or dividing the resonator structure or the waveguide in order to create multiple resonator structures. Rather, Sercel discloses etching an optical fiber to fabricate a resonator segment. *See e.g.*, Sercel, paragraph [0107]. Therefore, for at least the above reasons, Miyano would not lead a person having skill in the art to the inventions of claims 9-11, even in view of Dragone and Sercel. Applicants do not otherwise concede the correctness of the rejection and reserve the right to make additional arguments if necessary.

Claims 15-17, 19, and 20 depend from claim 14 and are, therefore, allowable over Miyano in view of Dragone for at least the reasons discussed above with respect to claim 14. Furthermore, Sercel does not overcome the shortcomings of Miyano and Dragone as discussed above with respect to claims 9-11. Therefore, for at least these reasons, Miyano would not lead a

person having skill in the art to the inventions of claims 15-17, 19, and 20, even in view of Dragone and Sercel. Applicants do not otherwise concede the correctness of the rejection and reserve the right to make additional arguments if necessary.

#### **New Claims**

Claims 26-30, which have been newly added, depend from claim 14 and are, therefore, allowable for at least the same reasons discussed above with respect to claim 14. Applicants respectfully request examination and allowance of claims 26-30.

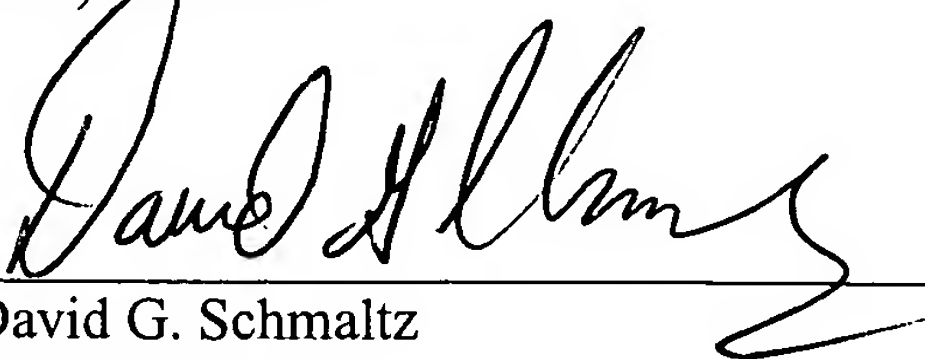
Claim 31 recites, in part, a method for fabricating multiple waveguide resonator devices including cutting the precursor resonator structure into a plurality of pieces to provide a plurality of resonator devices. Therefore, claim 31 is allowable for at least the same reasons as discussed above with respect to claims 1 and 14. Applicants respectfully request examination and allowance of claim 31.

In view of the above amendments and remarks, Applicant respectfully requests a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Respectfully submitted,

MERCHANT & GOULD P.C.  
P.O. Box 2903  
Minneapolis, Minnesota 55402-0903  
(612) 332-5300

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David G. Schmaltz  
Reg. No. 39,828

DGS/JKS/jt